

REMARKS

Claims 1-4, 8-11 and 22 are pending and at issue in the application with claim 1 being the sole independent claim. Claim 1 has been amended. Claims 5, 6 and 19-21 have been cancelled. Reconsideration and withdrawal of the rejections in view of the amendments above and the remarks below is respectfully requested.

The applicants respectfully traverse the rejection of claims 1, 2, 4, 10, 11, 19-22 as unpatentable over Hamzehdoost et al. (U.S. Patent No. 5,430,331) in view of Ohno et al. (U.S. Patent No. 5,227,662). The applicants further respectfully traverse the rejections of claims 3, 5, 6, 8, 9, 11, 19 and 20 as unpatentable over Hamzehdoost et al. in view of Ohno et al. and further in view of one or more of Majumdar et al. (U.S. Patent No. 5,703,399), McCarthy et al. (U.S. Patent No. 3,956,726), Tomita et al. (U.S. Patent No. 5,440,169) and Tanaka et al. (U.S. Patent No. 5,258,649).

Each of claims 1-4, 8-11 and 22 recites a semiconductor power module having a lead frame having a first portion at a first level and a second portion surrounding the first portion at a second level, and a power circuit mounted on a first surface of the first portion. Independent claim 1 has been amended to recite that the first and second portions and the terminals are made of one body. Independent claim 1 has been further amended to recite a control circuit mounted on the first surface of the first or second portion, and a heat detection circuit mounted on the first surface of the first portion. The control circuit drives the power circuit, and the heat detection circuit detects heat produced by the power circuit.

None of claims 1-4, 8-11 and 22 is obvious over Hamzehdoost et al. in view of Ohno et al. Further none of claims 1-4, 8-11 and 22 is obvious over Hamzehdoost et al. and Ohno et al. in view of the other cited references. In particular, none of the references, or any combination thereof, disclose or suggest a heat detection circuit mounted on the first portion with the power circuit, and that a control circuit is mounted on the first portion with the power circuit or on the second portion.

The action has acknowledged that neither Hamzehdoost et al. nor Ohno et al. disclose a control circuit that drives the power circuit or a heat detection circuit that detects the heat produced by the power circuit. (See action pages 4 and 5). Although the action has cited Majumdar et al. as disclosing a control circuit 8 that drives a power circuit 9 in Fig. 9,

Majumdar et al. does not disclose or suggest a heat detection circuit, nor has Majumdar et al. been cited for this purpose. And while the action has cited McCarthy et al. as disclosing a heat detection circuit, McCarthy et al. does not disclose or suggest that the heat detection circuit is mounted on a first portion with a power circuit, where the first portion is at a level different from the second portion. Indeed, none of Hamzehdoost et al., Ohno et al., Majumdar et al. or McCarthy et al. disclose or suggest any location to mount a heat detection circuit. Nor is it obvious to mount a heat detection circuit on the same level as the power circuit, where the control circuit is also mounted on the first level with the heat detection and power circuits or on the second level. In fact, to the extent the references disclose a lead frame having different levels, each of Hamzehdoost et al., Ohno et al. and Majumdar et al. disclose the opposite of what is claimed, in that the circuits should be mounted ***individually on different levels***. (See e.g., Hamzehdoost et al., Figs. 9A, 9B, 14A and 14b; Ohno et al., Figs. 5 and 7, Majumdar et al., Figs. 6-9, 12, 14 and 17). McCarthy et al. does not disclose or suggest any lead frame whatsoever. Accordingly, none of the references, whether taken individually or in combination, disclose or suggest a heat detection circuit mounted on the first portion with the power circuit, and that a control circuit is mounted on the first portion with the power circuit or on the second portion.

Further, none of the references disclose or suggest a lead frame having first portion at a first level and a second portion surrounding the first portion at a second level, where the first and second portions, as well as the terminals are made of one body. In particular, while Hamzehdoost et al. discloses some embodiments of a lead frame having first and second portions at different levels, it is clear from Figs. 1A, 9A, 9B, 14A and 14B that while the first portion is attached to the second portion and the terminals, the first portion is made of a ***separate body*** as compared to the second portion and the terminals, not one body. Likewise, while Ohno et al. discloses some embodiments of a lead frame having first and second portions at different levels, it is clear from Figs. 2, 4 and 5 the first portion, the second portion and the terminals are not all of one body. Figs. 9, 14 and 17 of Majumdar et al. may disclose a first portion, a second portion and terminals, but Majumdar et al. does not disclose that the second portion surrounds the first portion. Majumdar et al. only discloses cross-sections, so it is not clear whether or not the second portion surrounds the first portion, in which case Majumdar et al. cannot disclose or suggest a lead frame having a first portion

surrounded by a second portion at a different level. McCarthy et al. does not disclose any lead frame whatsoever. Accordingly, none of the references, whether taken individually or in combination, disclose or suggest a lead frame having first portion at a first level and a second portion surrounding the first portion at a second level, where the first portion, the second portion and the terminals are made of one body.

For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof are respectfully requested. One (1) independent claim remains in the application as previously paid for, and nine (9) total claims remain in the application as previously paid for. This response and RCE are being timely filed a two-month extension of time and fee. The applicants believe no additional fee is due. However, the Commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fees which may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 13-2855. Should the examiner wish to discuss the foregoing, or any matter of form, in an effort to advance this application towards allowance, the examiner is urged to telephone the undersigned at the indicated number.

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Respectfully submitted,

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